Wind and Prairie Task Force

Minutes, February 20, 2004

Opening:

The meeting of the Wind and Prairie Task Force called to order at 10:00 am on Friday, February 20, 2004, in the SRS Learning Center, Topeka, Kansas by Jerry Karr and Jerry Lonergan, Co-Chairs.

Jerry Lonergan opened the meeting. Introduce a new member to the Task Force.

Present:

Rose Bacon	rancher
Claude Blevins	county zoning administrator
Sheila Frahm	Natural Resource Legacy Alliance
Jan Jantzen	KS Flint Hills Adventures, LLC (tourism)
Jerry Karr	farmer
Jerry Lonergan	Kansas Inc
Jim Ludwig	Westar
Alan Phipps	county commissioner
Richard Porter	rancher
Scott Ritchie	rancher, businessman
Richard Seaton	Audubon of Kansas
Jennifer States	JW Prairie Windpower, developer
Don Stephens	rancher
Joseph Stout	rancher
John Strickler	Natural Resource Legacy Alliance
Greg Wakefield for Alan Pollom	Nature Conservancy
Monty Wedel	county planner
David Yearout	planning consultant

Technical advisory group - Ex officio members

Charles Benjamin	attorney
Niki Christopher	attorney
Ryan Dyer	Chair, Prairie Band Potawatomi Energy Committee
Bruce Graham	KEPCO
Mike Irvin	Kansas Farm Bureau
Ward Jewell	professor of electrical engineering at WSU
Ed Martinko	State Biologist
Robert Robel	professor emeritus of biology at KSU

Staff

Liz Brosius	Kansas Geological Survey
Debbie Douglass	Kansas Geological Survey

Special guests:

Richard Nelson (K-State), Lorn Clement (Riley County Planning Commission), Roger McEowen (K-State Extension Service), and Larry Holloway (Kansas Corporation Commission), Les Evans (wind-energy consultant and SERCC liaison to WPTF)

WIND and PRAIRIE TASK FORCE

Agenda: Second Meeting - February 20, 2004

SRS Learning Center, 2600 SE East Circle Drive South, Room C
Directions to the building and printable map are at:
http://www.kansasenergy.org/sercc_wptf_meetings.htm

10:00 **Welcome and Introductions,** Jerry Karr and Jerry Lonergan, co-chairs
10:10 **Review of Agenda**
10:15 **Overview of Wind Development and Industry,** Richard Nelson, Kansas State University
11:15 **Visual Aspects of Turbines,** Lorn Clement, Manhattan, Planning Commission
12:15 **Lunch**
1:15 **Gray County Video,** Sheila Frahm, Task Force member
Report on Gray Co. and Tourism, Jerry Lonergan
1:30 **Lease and Leasing Issues,** Roger McEowen, K-State Extension Service
2:30 **Transmission Overview,** Larry Holloway, Kansas Corporation Commission, and Ward Jewell, Wichita State University
3:00 **Next Steps**
Subcommittees
Review Next Week Agenda
Other Information Needs
Presentation from National Wind Coordinating Committee
3:30 **Adjourn**
Times are approximate

Approval of Minutes:
Jerry Karr: The minutes of the last meeting are here and are available on the website.

Announcements:
Richard Porter: Thanks to those that maintain the website.

Jerry Karr: Another thing, if you are contacted by media, remember you are a member of the task force. We hope you have been able to utilize the communications. Credit to Melany Miller for providing a transcript and the record of minutes. This is a real challenge and she did a good job.

Jerry Lonergan: Asked KGS to give us a larger poster of charges. These are available up front here. Any other questions?

Overview of Wind Development and Industry:
Lonergan introduced Richard Nelson, from Kansas State University, to give overview of wind industry.

Powerpoint presentation entitled "Energy, Renewable Energy and Wind Energy—Issues for Kansas" (available at **http://www.kansasenergy.org/sercc_wptf_meetings.htm**).

Richard Nelson: Identified major objective of Kansas energy policy: improve total system efficiency for all energy resources. Latest Kansas Energy Plan identified Kansas as a net energy importer. What are the implications for the economy, and environmentally? Talked about Kansas as The Sustainable State, utilizing new energy/power from energy efficiency and in-state renewables. Provided a quick overview of global and national energy issues and referred to a Wall Street Journal (1/26/04, by Jeremy Siegel) on the current state of affairs economically and showed maps of oil consumption per capita, major oil trade movements, and proved oil reserves. Why am I talking about oil when we are at the wind & prairie task force? Because wind and renewable energy can play a role, because we consume so much oil, and because it comes from outside the U.S. Referred to an article from The Economist (1/17/04) entitled Shell Shock, about how Shell downgraded roughly 4 billion barrels of oil and gas from its proven reserves to probable or even less certain categories.

Then he summarized the common criticisms of and misconceptions about renewable energy: (1) too diffuse (this can be a good thing), (2) never meet significant portion of energy needs (depends on end use), (3) cost too much (not if you consider all costs and life cycle costing), (4) takes more energy to make renewable energy hardware than it ever produces (not true and renewables provide a sustainable energy profit ratio), and (5) we have lots of fossil fuel (we do, but will we be able to get to it and do we really want to use it?). Outlined 3 reasons for using renewable resources (biomass, wind, solar): energy, environmental, economic. Should add ecological but don't have expertise in this. Summarized the energy balance of wind energy: throughout its 20-year lifetime, the average turbine produces 80 times more energy than it took to build, maintain, operate, dismantle, and scrap it; takes only about 3 months for turbine to recover all the energy it took to build and operate. Wind Energy Potential in Kansas gets better as you move west (in general). Difference between what blows and what can be economically developed. Have classes of wind – 7 in the west. Kansas associated with being the 1st to 3rd windiest state in US. Wind Power isn't Perfect: output varies over time, location dependent, transmission dependent for tie in to the grid, has environmental impacts (pro/con), can only meet part of the electrical load.

Power captured at turbine is equal to half air density swept by rotor, times the wind speed cubed. Therefore it pays to hunt for good wind sites with better wind speeds. Velocity is related to height above the ground, wind speed goes up the higher above ground you are. Alpha Coefficient - alpha is the function of the wind velocity and its height above the

ground, is an indicator of the "goodness" of a site, the greater the alpha coefficient, the better the site in terms of wind resources, economics, environmental benefit, etc., alpha coefficient can and does vary annually, monthly, daily. Compared the physical and operating characteristics of different wind turbines.

Talked about wind energy economics. Wind insures against fuel price risk. Cost of wind energy is strongly affected by average wind speed and size of wind farm (the taller the turbine and the large the area swept by blades, the more cost-effective the turbine). Assuming the same sized project (total MW installed), the better the wind resource, the lower the cost of the energy produced. Larger farms are more economical than small ones. One environmental benefit of wind power is the lack of polluting emissions.

Outlined siting issues: turbine reliability, aesthetics, noise, bird collisions, shadow flicker, ice, safety, and property values. Siting of wind turbines is important—twice as much wind yields eight times as much energy. Roughness of the terrain affects local wind speed. In a typical wind park turbines and roads occupy less than 1% of area. Remaining 99% can be used for farming or grazing. As for noise, a wind farm at 750-1000 ft is no noisier than a refrigerator or a moderately quiet room. As for bird collisions, the first wind farm at Altamont, CA did have a lot of birds die. This seems to have been an anomaly. In the end, it's all about trade-offs and choices: what's important to Kansans? The next thing to do as state, develop KS renewable resources action plan (KRRAP) that covers economic, energetic, environmental considerations for all of KS. Undertake a preliminary renewables-based hydrogen initiative that focuses on utilizing the state's renewable resource base.

Questions and comments about Nelson's presentation included:

1. How do you convert meters per second to miles per hour (multiply by 2.2?)

2. How is wind energy inflation proof? (Fuel is free, unlike natural gas which jumped 3 years ago, and has been high this winter).

3. What about nuclear energy? Is this something that everyone in your business disregards? (project wind could meet 20% of energy demands in the next 15 years, Minnesota, Iowa, Calif., Japan, taking lead)

4. You talk about tradeoffs: we have wind all over the state, but we have prairie in a much smaller part, it doesn't make sense to make that tradeoff. (That is something that you need to decide. When China and India come online, they are going to suck out a lot of that reserve. They have the resources to do it. They are going to burn coal like it is nobody's business. That is going to affect our environment. What do we want to do? How can we play a part? Wind is just one way to help. We have been discussing this for 20 years. The Saudis know how to yank our chain just enough to effect our prices. Think about getting out of this, become sustainable, wind is just a small part. We don't want to get caught short. Energy efficiency needs to go before that, what is important to you?)

5. We can't lose sight of the fact, politically, that we can move to alternative energy sources, but the economic impact will be much more significant than anything else we have seen since the depression. It would cause more turmoil. Is it worth that kind of risk? We are working toward a soft landing with the transition from a petroleum based energy operation to other sources. Within the last couple weeks a recent article about hydrogen cell efficiencies and fuel sources. (Hydrogen fuel cells are not constrained by the laws, runs off electric chemical reaction which is approximately 50% efficient. Where do you get the hydrogen from? That is the key. There are efficiencies – ethanol sprayed with water can increase the efficiency of extracting the hydrogen. The biggest problem is storage of hydrogen. How do you store it in large quantities and how do you transport it? It is a leap to go from oil to wind. In the next 5-10 years, we are not going to have a renewable energy future. We need to become sustainable. Will it wreck our economy overnight? Not if you do it in bits and pieces.)

6. Is there technology readily available to regulate reliability of a wind power generator? And if you have a closed system that you need a fixed output, are we able to store this for when wind speed is low? (No, credits make it economical, storage is not economical. Some say we should just store it in batteries. How much do the batteries cost? How many do you need, and where are you going to put them? This becomes uneconomical.)

7. Regarding the slide about noise from the towers. What distance do you need to go to? I am trying to get a feel for how far away you can hear them at night. (I don't have an answer. I went to Texas, saw a wind farm, talked to the land owner, one wind turbine was as far away as a parking lot, the land owner said he hated it, but couldn't hear it. This particular turbine was going about 4 revolutions per minute. There are a lot of variables associated with this. How high is the ground level, etc.?)

8. Regarding efficiencies of the state of the art equipment, how fast is that changing? This is better than was 5 years ago, are they like 5 year windows, or like a computer today? (The research being done is based on blade design. I didn't go into a lot of detail on that slide that shows the five different levels of wind turbines and why they are different. There is not a lot of difference between a 1.5 and 3, other than the area swept by the rotor. It's blade design. The wind speed varies by height. The stresses on the blade up here will be higher than it will be down here where the wind speed is lower. Most of the research focuses on the blade design. 2.5-4 megawatt systems capture more of that wind and there are places in the Flint Hills where these systems will work and some places they won't work. They may not be cost effective at all. I don't think you will see a huge change where you buy one and by next year that system becomes obsolete, not like a computer.)

9. Then the future is in the blade design rather than the efficiency of the turbine itself? (Yes. That is all part of the turbine.)

10. Can you tell us where in the Flint Hills they will work and where they won't? (No, if only I could. We looked at Teterville. From an environmental and ecological standpoint,

if you put a road in, you will disturb the land. The first place we would look is on a ridge where old oil wells are. The roads are already there. There are a few sweet spots in the Flint Hills. This has to do with the topography of the land and how the winds snaked through there and hit that ridge.)

Jerry Karr: Richard Nelson provided the technical side of looking at wind, Lorn Clement will provide aesthetics side.

Short break at 11:05 a.m.

Resume at 11:15

Lorn Clement: Introduced himself as a teacher at K-State, landscape architect, and attorney. Has degrees at KU and K-State, teaches design studios. Licensed in both fields.

Powerpoint presentation (available at **http://www.kansasenergy.org/sercc_wptf_meetings.htm**) entitled "Visual Aspects of WECSs."

Lorn Clement: Starts with aesthetics but ends with economics. We need to look at the balance of our economy and to look at the vitality as well as a growing economy. The cost of living has gone up in the last 10 years. The quality of life is still very good. This is important. Beauty is in the eye of the beholder. Emphasized denotative and connotative levels of visual significance. There is no general agreement ,so we shouldn't even talk about aesthetics. Speaking as a landscape architect, it is difficult to talk about beauty or aesthetics, but it is possible. We can learn a lot from other states where mistakes have been made. The visual change is the most controversial. Distance from the viewer is important. Size, shapes, position, direction, colors and textures, linear elements, etc. are all key in positioning in the landscape. There are other things such as wires, poles etc. that go with the turbines that may not be buried that also may cause clutter in this area. We have to avoid clutter. Location is a strong issue. Some say, out of sight, out of mind. There are other things out there such as cell towers, radio towers and things that have had an affect on the landscape. There is the issue of keeping the turbines working and tearing down non-functioning units. The turbines should follow strict guidelines on size, shape, spacing, etc. If there are homes nearby, are there any shadow flicker or strobe effect? As the sun shines through the blades, this can cause a shadow flicker or strobe effect in the homes. It is best to position these wind turbines well away from homes to prevent this effect. The glint off the blades could be a distraction to drivers. Skyline attraction is a valuable thing to look at.

Questions and comments about Clements' presentation included:

1. Does locating the towers on slopes help visually, or is this a matter of the disruption of the ridge? (On top of the plateau you have a sense the land is flat on top of the plateau. We may have a similar sense as Montezuma where you don't see a grade change. You don't have land change, so you don't worry about dominance. There may be a positive

thought that once you reach that plateau, you follow the terrain, so there is a sense of repetition, and order. The worry is in the clutter. If you can't bury the power lines, you will not be achieving proper aesthetic design that everyone can accept. As we write regulations, we can't bury all the lines without doing damage in some areas.)

2. What is the trend in wind farms today: dense or more spread out with bigger turbines? (We are going towards taller, tubular, new efficient design, bird/perching spots reduced, but clearly fewer, larger units to go into clusters.)

3. I have a question on the concept of denotative versus connotative, one being objective and one being subjective. In several of the recommendations that you talk about, some of the comments of what is preferred about clusters being better, and some other examples. I have heard the exact opposite being preferred. Symmetry is preferred versus cluster. Or smaller is better. I have heard that some don't prefer the California projects where there is hundreds of smaller turbines versus the new projects where there are fewer, larger turbines. Where there is such a variance in opinion on what is visually appealing, how can you develop recommendations on what should or shouldn't be done? (This should be a locally based standard. I am pursuing a study with one of my graduate students to simulate a 100-400 in various heights of turbines, using the design that we anticipate would be proposed, to try to get the simulation out there. If we have time to do some studies, can do on scales, major concerns is context matters.)

4. How much are you considering the reality of being able to adjust things? Take a turbine from a 60 meter height to a 20 meter height, the reality is that is not going to function. If you move turbine from the top of the hill to the bottom of the hill, it would not work because of energy needs. So how much does the reality of the technology and how these projects function get factored into the visualization aspects? (If I don't address the visual aspects no one else on the planning board is going to. The clutter idea is not to put the turbines down. The clutter is to take care of the power lines or other structures to hide them or make them go away by burying them. It's a question of values in the community about where they should be located in the first place. If the rock is saying your damned if you do and damned if you don't, if can't bury lines, this tells me that this is not the right place for them. The study I am proposing has traps in it to be able to provide contexts. Worried about knowledge that goes into evaluation, but it should be a local standard within the community.)

5. As you are doing these studies, do you think about wind power versus coal fired plant, or something like Wolf Creek? It is hard for a machine to compete with landscape. If the Flint Hills region is a prime region for wind, then if you carry the local thing out so that they all say not in my backyard., then some other regions in the state carry the power burden for all these pretty hills everybody wants to have. I am not saying that's good or bad, it's just there is a larger context of not just pretty hill versus wind tower, it's pretty hill versus coal fire plant sitting on it, or tower versus coal plant or nuclear power plant. You have to bring more into it than just landscape and landscape intrusion. What about where do these people get power if they don't intrude some else's landscape? (It is going to be difficult to be comfortable with data gathered, it is going to take a long time to put

together. It's protecting all the tourisms, and the recreational values. It is not an easy orsimple thing. Some issues ignored.)

6. Do you have any quantitative method of dealing with the difference between the wind turbines and the height versus other stationary things, even like the mass of the water tower. One aspect is that those towers are moving, stationary water or cell tower, you don't have that. You would have lights flickering, but not the impact as rotors turning. Do you have any way to measure? (Yes. We have someone that wants to do a video. Our study would be combined with video, with tools becoming so sophisticated to do simulations, this is not an issue.)

7. On the issue of energy sustainability and economic sustainability, are there ways to site wind turbines, where the tourism economy of the Flint Hills can be maintained? What about hiding towers in places where tourists want to go, would that memory stay? (I don't think you can hide them. If you can't see them from the public highways, this may be an acceptable choice.)

Jerry Karr: This is one of the most challenging parts of the task force, the viewscape or viewshed, aesthetics or subjective nature of this particular aspect of the siting boards of the local planning unit. Look back at your charges and how to translate these into the charges.

Break for Lunch at 12:20

Reconvene at 1:10

Introduced Tom Hogan, from the Gray County Energy Center. Thanked Sheila Frahm for arranging for Tom to speak to the task force. Hogan showed a video put together by FPL Energy on various wind-energy projects around the country. Distributed printed materials from FPL Energy, including a fact sheet on the 112 MW, 170-turbine wind farm in Gray County.

John Strickler: Have you had any complaints about sound?

Tom Hogan: No, when turning, if within 75-100 ft on ground level, won't hear, and if you're right underneath you hear a rubbing sound, rather than a whipping sound. When the turbines were built, we stayed a mile away from any home or inhabited area. At the public hearing, three people spoke in opposition: one thought land value would go down, another wasn't going to get a wind turbine, and another was non-resident landowner whose land was in a depression and didn't get a tower, but he got paid some money for being bothered.

Ryan Dyer: What economic benefits are there for the county?

Tom Hogan: Each landowner gets $2K per tower, county gets $305K a year, $115K of which has to go to school district. Wind farm is in one school district, rest of money was

divided up as mill levy, county gets $200K. In Gray Co, one mill raise is $55K. As far as economics, Montezuma (700 people) has a new restaurant.

Rose Bacon: I talked to a man from Montezuma yesterday who said the reason wind energy works there is that Aquila's gas-fired generating plant gas could be fired up quickly when the power fluctuates from the wind farm. Comment on that?

Tom Hogan: This depends on equipment. Maximum energy production is generally around 3:30 to 4:30 in the morning. FPL plans to add another 30 turbines at Gray Co. site because they aren't generating as much electricity produced as initially thought and grid can handle. Towers are not erected yet.

Dave Yearout: If it had been illegal for the money to be offered to the county, and money wasn't a consideration, what would have been attitude?

Tom Hogan: There was no talk of money to county until all contracts had been signed by landowners. The money has helped farmers survive, and it's still an issue today at the local coffeeshop between farmers on one side of the road where towers are and those on the other side who didn't get anything.

Monty Wedel: Did this go through zoning?

Tom Hogan: Yes, commissioners were only looking to get money to help maintain the roads, etc. We have a ten-year contract, then renegotiate.

Jennifer States: I know the county worked with FPL on the road issues?

Tom Hogan: The intersections are not big enough to handle 80 ft trailers, so the county rebuilt intersections, took the grade out. One of the cranes couldn't made more than a 2% grade, so county hauled in materials to level out some areas. County worked with contractor to bring beat-up roads back to grade. FPL had roads to towers, when they finished, these were torn up; they gave the material to county, and county was able to build 9 miles of road with it. Everything's back to normal.

Greg Wakefield: Are these typical landowners?

Tom Hogan: Two landowners that have 15 towers each on their land, the rest are scattered among quarters. Most were quarters, involved 75 landowners.

Charles Benjamin: Is FPL allowing anyone to do avian studies at Montezuma?

Tom Hogan: Yes, they did have a college student come back and Dodge City is studying. Hasn't been an issue. FPL hasn't turned anyone down.

Charles Benjamin: The legislature has been urged to print entire wind power agreement. It's notable that you are telling us that the landowners are getting $2K a year, thought was confidential. (Supposed to be confidential, but everyone knows.)

Jan Janzten: You said Tourism increased. What were the reasons for people to come before wind farm? What is the increase?

Tom Hogan: A museum, rotating display from Smithsonian, don't know what the increase is. Stop at Dodge City, Montezuma, then Liberal.

Dave Yearout: What maintenance problems are from insects?

Tom Hogan: I haven't heard that. These are washed once a year. We had an issue of ice buildup.

Richard Seaton: FPL only company involved?

Tom Hogan: Yes

Scott Ritchie: FPL was parent company, sell off?

Tom Hogan: Gray County LLC

Scott Ritchie: LLC stand on their own? Who does cleanup after dismantled?

Sheila Frahm: Had to get back to farming the ground after towers are up

Scott Ritchie: This is like after oil fields are closed, state had to plug the wells.

Lease and Leasing Issues

Roger McEowen from K-State Extension introduced.

Powerpoint presentation entitled "Leases and Leasing Issues" (available at **http://www.kansasenergy.org/sercc_wptf_meetings.htm**).

Roger McEowen : Wind energy has significant economic benefits for rural landowners, but all agreements must be carefully evaluated by legal counsel. Important to carefully examine the structure of the land-use agreement. Never sign a lease/easement agreement with a developer without first seeking legal counsel. Lots of questions: must developer consent to landowner's property use? Is developer given rights not related to wind energy development? What is the compensation structure? What about burning of pasture, there are some clauses that would be restrictive to pasture burning with a defined area around turbine. Landowner must stay abreast of liability issues.

Site selection is key to development and avoidance of legal problems in the future: need a windy site, near transmission lines, with access to roads, few environmental concerns, and community support. Few ordinances pertain specifically to wind systems. With wind-energy agreements, common fee is minimum flay payment per turbine plus a royalty (% of revenue). Every aspect is negotiable. With wind-energy contracts, landowner either gets lease document or easement agreement. If it's a lease, it should be long enough for developer to recoup investment (at least 20 yrs); if easement, does it include turbine sites, substations, air space, buffer areas, vegetation restrictions, building restrictions, transmissions, and associated rights of way? If sale of land (unlikely as developers don't want to buy land): price = fair market value plus wind value.

Summarized contract provisions: term of years, surface rights, transmission rights, land use restrictions, compensation, assignability, which is critical for financing (insert clause that ensures the original developer's liability if assignee defaults under the terms of the agreement).

Legal issues for landowners:

1. How much of land is subject to agreement?
2. Length of agreement
3. Am I compensated fairly for the property rights I have given up?
4. Tax consequences of wind energy payments
5. Is payment based on wind energy production or a fixed amount?
6. Does developer want to develop land or just want a use right?
7. What events allow the developer to terminate the agreement?
8. Consider clause language that requires landowner to be treated as foavorably as neighbors that execute similar agreements.

Require that wind-energy agreement be recorded (not just a memorandum of lease agreement). Never agree to confidentiality agreements. Have your insurance agent review the agreement. Determine whether USDA land use restrictions will be violated? Consider clause requiring developer to indemnify landowner for any lost government payments or for imposition of any penalties. Acommon problem with negotiating a wind-energy agreement is that once proposed and submitted to landowner, company tends to not want to negotiate changes to the agreement's terms.

Discussed provisions of a wind-energy contract (indemnification, mitigation of damages, excavation and reclamation—e.g., who gets the rock that's excavated, and restoration). Summarized risk evaluation for landowners, liability and insurance issues. Summarized environmental concerns in the Flint Hills and related issues: threat to tallgrass prairie ecosystem, bird impacts, and aesthetic concerns.

Questions and comments about McEowen's presentation included:

1. What about easement for wind itself? (There is no single case on that, American Law has never had light, air, or wind. You could say that someone else is getting your wind. May come under the nuisance issue.)

2. What if you had an ag- or eco-based tourism and your neighbor erects a wind farm, would this be an issue? (If you were there first and you have your permits, would depend on who your neighbor is.)

3. What about cell phone towers, on a nuisance theory? Strobe?(Light issues cases filed, nothing settled yet. Under U.S. law, strobe would not give rise, don't recognize negative light.)

4. Not sure how you come to wind value? (The key is negotiation, information is key.)

5. Many of the coalbed mehtane leases included boilerplate with implied covenants. (Haven't seen in wind agreements.)

6. Have you seen good agreements? (The landowners don't care, they just want money. They don't know what they are giving up.)

7. Is there some return on the gross sales other than the $2K per year per turbine for the landowner? (Yes, most of the landowners are happy, pretty one sided contracts, are working out.)

8. Are bonds typical in leases? (Yes.)

9. Have most of the areas that agreements would be signed on already been chosen? (Yes, the wind map showed areas where likely for wind.)

10. Have you seen a model lease that you would recommend? (Boilerplate, different companies, standard agreement used. Have a model form based on these suggestions).

11. What are the terms of these lease agreements? (Some will expire in 6 months. Some are getting to end of that and will extend.)

Roger McEowen: I had a call from a county: don't I own air in 3-dimensional plane above and beneath earth? Planes are able to fly, reasonable use of property based on circumstances in area, have a neighbor that erects wind farm—is this a nuisance? With livestock it is OK for Greeley county Kansas, but not in NY City.

Jerry Karr: Thank you Roger, will be back in touch for assistance, use subcommittee to handle a model leasing agreement.

Break at 2:45

Reconvene at 2:52

Jerry L. introduced Larry Holloway, KCC, to report on transmission and the SW Power Pool meeting.

Powerpoint presentation entitled "Electric Transmission Issues" (available at **http://www.kansasenergy.org/sercc_wptf_meetings.htm**). Ward Jewell, task force advisory member, also contributed to presentation.

Larry Holloway: Chief of Energy Operations at KCC. I am an engineer, have worked a lot of years in powerplants. KCC deals with natural gas, oil and gas, regulatory matters, rate design, we follow a lot of the transmission issues.

Overview of Transmission: rate is designed for regional access; there was discussion on whether itshould be like a license plate rate or a postage stamp rate, or charged to the load. Interconnection costs—this summer FERC issued Order 2003, requiring repayment of network upgrades, participant funding. Transmission system operates as both a grid and a network—this is the result of how it was incrementally built. Power flows over the path of least resistance. Power flows on the network at any point in time depend on loads (sinks) and generation (sources). Capacity on the system depends on system usage. Transmission capacity issues include: loading of individual lines, ramp rate limitations, limited local markets, and exports to other markets.

Showed a map of high-voltage transmission in KS and in the region, showing Chicago as the likely place to export electricity. To calculate transmission capacity, evaluate probable sinks and sources, assume that system is reliable with one single failure, must account for existing transmission rights. First, you must know where the source will be added and where the sink will occur.

At the KS Panhandle SPP Meeting last Tuesday (Feb. 17) in Wichita, people were talking about increasing western KS wind and coal generation. Plans were presented by Sunflower Rural Electric Coop (Holcomb), Aquila, Xcel Energy (3,000 customers in Kansas but have done more than anyone else for increasing transmission lines), Zilkha, and Enxco.

Showed map illustrating that Holcomb is at a 4-way 345 kV Hub; they are nearing completion on a line that extends west to eastern Colorado. Explained the complications of the eastern and western interconnect.

[brief discussion with task force members about why it isn't a simple matter to join the eastern and western grids]

Sunflower operates a 345-kV transmission north and east of the Holcomb power plant. At Holcomb, sunflower ties into the new Xcel 345 kV lines southward to Potter County Substation, near Amarillo and westward to the Lamar AC/DC/AC converter station now uner construction. They would like transmission to go to western or have independent producer come in and build coal plant next to their plant.

Major constraints in SPP include the north-south flow across Kansas into Oklahoma; Their solution was to build another 140 miles of 345kv, from Spearville to Mooreland. [this would cost roughly 400K a mile]

Summarized the presentation by West Plains Energy. Talking about adding another 345 kV line into Nebraska and Kansas. Showed several maps, including study done by MISO. Suggested several lines, running one from Holcomb to Nebraska.

Looked at Xcel plan, look at what they need to do, see that the one line from Mooreland up to Spearville, want to see another connection to Wichita, then to OKC, then to Amarillo. Would help out transmission capacity problems, but Xcel wants to help their customers. Showed maps by Zilkha, which tried to show transmission additions needed to support another 300, 500, and 1000 MW of wind generation in western Kansas. Showed very preliminary summaries of moderate and aggressive growth costs.

Questions and comments about Holloway's presentation included:

1. How much additional wind generation can KS take before transmission line upgrade? (It is hard to know, problem is moving power west to east, or to Nebraska or Oklahoma. Put turbines in the Flint Hills, and you could sell to east, St. Louis)

2. Siting transmission lines is always going to be difficult, if you were to place a new 345 kV line, could you eliminate some of the 115 lines? (You could. in slides I showed putting one line next to another, for aesthetic reasons good, [but] I'm an engineer and if have a tornado, would rather have 200 miles away.)

3. Can you give any idea of time frame? (We have to do something in next 5 years.)

4. Do you know where there are transmission constraints, where we could develop 100 MW and move the power? Could we do 2 in western Kansas, 2 in Flint Hills? Where will you sell the power? (I was asked to speak at the wind conference in Lawrence, a year and a half ago, and they wanted me to speak on the carrying capacity of each of the transmission lines in Kansas. Said I couldn't do that. Load studies are complex. I can't answer your question.)

5. Is there a place to put wind farm and sell the power? (Tell me where you are selling the power, I could probably tell you where to build.)

6. There are lots of people in western Kansas saying the cost ratio of getting that connection to Denver is not justified by market. (That would be expensive. It is hard to make money on transmission.)

New Business:

Jerry Lonergan outlined what to expect at the next meeting: Scott Allegrucci, Kansas Dept. of Commerce, Director of Tourism, will be looking at tourism issues and planning

in the Flint Hills area. Broad potential to be marketed as tourist attraction. Ted Eubanks, of Fermata, will be talking to us regarding tourism issues. They are starting a process in March, and will come back to the Task Force to report the outcome of the research in the Flint Hills. Donna Johnson, president of a Pinnacle Technology, will come and give presentation on wind development in other states. Drs. Robel and Martinko will talk about wildlife and bird issues and wind turbines and development. Outside chance that National Renewable Energy will be sending someone to talk about trends of wind turbines. Are they getting better? What is the future outlook for the technology. National Wind Coordinating Committee would make someone available to us March 19 or March 26 to talk about how to solve some of these problems.

Question to committee—Does this answer all of the questions you all had at our last meeting?

Dave Yearout asked for information on marketing wind energy, renewable energy portfolio standards, what other states are doing.

Jerry Lonergan: Let me see if Donna can talk on that. She is a proponent of wind, so if you want someone else to speak, let me know.

Rose Bacon suggested inviting Mike Hayden talk about siting issues and natural resources.

Jerry Lonergan/Karr: We will visit on this and then see if Mike Hayden could help the task force move forward.

John Strickler: The Renewable Energy Task Force has developed these siting guidelines, does everyone have a copy?

Liz Brosius: They are on the website; we will have copies for every one next week.

Scott Ritchie: When is the next meeting after Feb. 27?

Jerry Lonergan: We will decide after hearing from National Renewable Energy Laboratory.

Dave Yearout: There's a Wind Energy Conference next Wednesday, February 25, Wichita, Marriott, on Kansas Municipal Energy website (Kansas Municipal Energy). Visited with city manager at Dodge City, asked him if he would be willing to help coordinate a meeting out that way, see Montezuma, other aspects. Would be thrilled to do that, know that is a longer drive, will have him send letter to the 2 Jerry's.

Les Evans: There's an Environmental Law – Wind Energy in the Flint Hills conference, next Wednesday at Washburn.

Rose Bacon: Also one on given by Greater Morris Co. Economic Development Commission.

Discussion of legislation related to wind energy; Lonergan suggested sending this information out to listserve.

Scott White: Go to KS Energy.org main page, have pages on wind including legislation that I am aware of, have link to PDF version of the bill, with a synopsis.

Jerry Karr: We don't want to spend a lot of time on legislative issues when we have so many other issues to deal with. Turnaround is next week.

John Strickler: I agree totally. Not to put pressure on the task force, but I visited this week with a legislator involved with these issues, and they're not interested in doing too much because they are waiting to see what this task force is going to do.

Jerry Karr: This may give you ideas on what we want to consider, always go back to the 8 charges. Might broaden our recommendation.

Jerry Karr: Richard Porter has expressed interest in working on land lease issues with Roger McEowen. If anyone else wants to work on that, let either of us know. Another area is the question regarding land trusts. That was mentioned, not certain that we know what to do in that area. Anyone here that feels comfortable, we want to have clear in our minds, in regards to land trusts and other mechanisms to preserve the prairie.

Seaton: I assumed that is conservation easements.

Karr: That is what I assume too, need to clarify.

Adjournment:

Meeting adjourned at 4:08 pm on Friday, February 20, 2004. The next meeting will be February 27 at this location except across the hall, 10 am to 3:30 pm.

Minutes submitted by: Melany Miller, WPTF Secretary

Minutes approved by: